

Claims

- [c1] 1. A method of reworking integrated circuit devices, suitable for reworking a barrier layer, a conductive layer and an anti-reflective layer formed on a dielectric layer, the method comprising:
performing a dry etching process for removing the anti-reflective layer;
removing the conductive layer; and
removing the barrier layer.
- [c2] 2. The method of reworking integrated circuit devices of claim 1, wherein the material of the anti-reflective layer is selected from a group consisting of Ti/TiN, amorphous silicon and Ta/TaN, and the dry etching process for removing the anti-reflective layer is performed using a gas source selected from a group consisting of Cl_2 , BCl_3 , hydrocarbon containing halogen and SF_6 .
- [c3] 3. The method of reworking integrated circuit devices of claim 1, wherein the hydrocarbon containing halogen comprises CHF_3 or CCl_4 .
- [c4] 4. The method of reworking integrated circuit devices of claim 1, wherein the step of removing the conductive

layer comprises performing a wet etching process.

[c5] 5. The method of reworking integrated circuit devices of claim 4, wherein the material of the conductive layer comprises Al, Al-Cu alloy or Al-Si-Cu alloy, and the wet etching process for removing the conductive layer is performed using an etching solution containing sulfuric acid.

[c6] 6. The method of reworking integrated circuit devices of claim 4, wherein the material of the conductive layer comprises tungsten, and the wet etching process for removing the conductive layer is performed using an etching solution containing sulfuric acid.

[c7] 7. The method of reworking integrated circuit devices of claim 4, wherein the conductive layer comprises Cu, and the wet etching process for removing the conductive layer is performed using an etching solution containing nitric acid.

[c8] 8. The method of reworking integrated circuit devices of claim 4, wherein the step of removing the barrier layer comprises performing a chemical mechanical polishing process.

[c9] 9. The method of reworking integrated circuit devices of claim 8, wherein the chemical mechanical polishing pro-

cess uses a polishing slurry comprising aluminum oxide and hydrogen peroxide.

[c10] 10. The method of reworking integrated circuit devices of claim 1, wherein the step of removing the barrier layer comprises performing a chemical mechanical polishing process.

[c11] 11. The method of reworking integrated circuit devices of claim 10, wherein the chemical mechanical polishing process is performed using a polishing slurry comprising aluminum oxide, hydrogen peroxide and ammonium hydroxide.

[c12] 12. A method of reworking integrated circuit devices, suitable for reworking a barrier layer, a conductive layer and an anti-reflective layer formed on a dielectric layer, the method comprising:
removing the anti-reflective layer;
performing a wet etching process for removing the conductive layer; and
removing the barrier layer.

[c13] 13. The method of reworking integrated circuit devices of claim 12, wherein the step of removing the barrier layer comprises performing a chemical mechanical polishing process.

- [c14] 14. The method of reworking integrated circuit devices of claim 13, wherein the chemical mechanical polishing process is performed using a polishing slurry comprising aluminum oxide, hydrogen peroxide and ammonium hydroxide .
- [c15] 15. The method of reworking integrated circuit devices of claim 12, wherein the material of the conductive layer comprises Al, Al-Cu alloy or Al-Si-Cu alloy, and the wet etching process for removing the conductive layer is performed using an etching solution containing sulfuric acid.
- [c16] 16. The method of reworking integrated circuit devices of claim 12, wherein the material of the conductive layer comprises tungsten, and the wet etching process for removing the conductive layer is performed using an etching solution containing sulfuric acid.
- [c17] 17. The method of reworking integrated circuit devices of claim 12, wherein the conductive layer comprises Cu, and the wet etching process for removing the conductive layer is performed using an etching solution containing nitric acid.
- [c18] 18. A method of reworking integrated circuit devices, suitable for reworking a barrier layer, a conductive layer

and an anti-reflective layer formed on a dielectric layer,
the method comprising:

removing the anti-reflective layer;

removing the conductive layer; and

performing a chemical mechanical polishing process for
removing the barrier layer.

- [c19] 19. The method of reworking integrated circuit devices
of claim 18, wherein the chemical mechanical polishing
process is performed using a polishing slurry comprising
aluminum oxide, hydrogen peroxide and ammonium hy-
droxide .